It lived with me about a Fortnight, but I could never perceive that it beat, after it was confin'd in the Box.

II. *Obſervations of the Eclipſes of the firſt* Satellite *of* Jupiter, *communicated by his Excellency* William Burnet, *Eſq; Governor of* New York, *F. R. S.*

Theſe Obſervations were made in the Fort of *New York*, for determining the Longitude of that Place by us,

William Burnet, *Cadwallader Colden*, *James Alexander*, and calculated by *Cadwallader Colden*.

The Latitude of the Fort, was formerly determin'd to be 40° 40′.

Auguſt the 9th, 1723.

	H.	′	″
TIME of Emerſion at *London*, according to Mr. *Pound*'s Tables, reduced to apparent Time	16	09	25
Time as it was ſeen at *New York*	11	10	43
Difference of Meridians	4	58	42

I neglected to write down the Altitudes which were taken of the Sun, for correcting the Clock.

Auguſt

Auguſt the 25th.

Altitude of the Sun's Upper Limb.		Time by the Clock.	Time by Calculat.
	° ′ ″	H. ′ ″	H. ′ ″
Sun's Declin. 6° 55′	49 30 00	10 17 52	10 17 28
	51 13 30	10 33 10	10 32 8
Aug. 26. Sun's Declin. 6° 33′	46 24 00	9 57 40	9 56 25
	47 50 00	10 8 22	10 6 57

	H.	′	″
Time of Emerſion by Mr. *Pound*'s Tables	14	31	25
Equation of Time to be added	00	01	22
	14	32	47
Time obſerv'd by the Clock	09	35	14
The ſame corrected	09	34	14
The Difference of Meridians	04	58	33

This I look upon as the moſt diſtinct and beſt Obſervation.

September the 10th.

Altitude of the Sun's Upper Limb,		Time by the Clock.	Time by Calculat.
	° ′	H. ′ ″	H. ′ ″
Sun's Declin. 49′	33 21	09 01 00	09 00 16
	34 06	09 06 01	09 04 49
Sept. 17th Sun's Declin. 1° 54′	17 17	04 21 40	04 21 44
	15 15	04 33 05	04 32 47

Time

	H.	′	″
Time of Emerſion by the Clock *September* 10th	08	00	10
Time of Emerſion by Mr. *Pound*'s Tables	12	50	36
Equation of Time to be added	00	06	54
	12	57	30
Corrected Time at *New York*	07	59	08
Difference of Meridians	04	58	22

June 26th, 1724.

Altitude of the Sun's Upper Limb.	°	′	Time by the Clock. H.	′	″	Time by Calculat. H.	′	″
June 20th, Sun's Declin. 23 . 7	56	44	09	48	03	09	43	37
	60	27	10	09	40	10	05	05
June 27th. Sun's Declin. 22 . 26.	63	31	10	27	43	10	27	05
	65	21	10	40	00	10	39	27

	H.	′	″
June the 26th, Time of Immerſion by the Clock	11	41	12
Time of Immerſion by Mr. *Pound*'s Tables	16	43	02
Equation of Time to be ſubtracted	00	04	26
	16	38	36
Time at *New York* corrected	11	40	15
Difference of Meridians	04	58	21

The Mean of all theſe Obſervations is 4^h 58′ 30″ which agrees to 3″ with that Obſervation, which I thought the moſt exact, and therefore the Longitude of *New York*, is nearly 74° 57′ 30″ Weſt from *London*.

The

The Variation of the Magnetick Needle was obſerv'd, this Year, to be 7° 20′ Weſt. *Philip Wells*, Surveyor General of this Province, in the Year 1686, obſerv'd it to be 8° 45′; by which, it appears to decreaſe about 1° 25′ in 38 Years, or a little more than two Minutes in a Year.

III. *A New Contrivance for taking Levels, by the Reverend* John Theophilus Deſaguliers, *L. L. D. R. S. S.*

THAT the Air Thermometer is alſo a Barometer, has been obſerv'd long ago; and, becauſe the Liquor in it will riſe and fall, as well by the Change of the Weight of the Air, as by the Air's Rarefaction by Heat and Cold, this Inſtrument has no longer been made uſe of as a Thermometer, and, in its ſtead, Spirit of Wine Thermometers, hermetically ſeal'd, have been us'd ever ſince.

But, becauſe the Errors of the Air Thermometer (or its Difference from the Spirit Thermometer) depend only upon the Change of the Weight of the Atmoſphere from what it was, when the two Thermometers were ſet at the ſame Degree of their reſpective Scales; the late Dr. *Hook* contriv'd an Inſtrument, that he call'd a Marine Barometer, made of a Combination of the two abovemention'd Thermometers; in ſuch Manner, that a third Scale being made uſe of, to obſerve the Difference of the two Thermometers, thereby the Change of the Air's Gravity, and conſequently Storms, Rains, and fair Weather, might be foretold at Sea, where the Quickſilver Barometer becomes uſeleſs by the ſhaking of the Ship.

Dr.